

*By Cont. in*

a field indicating that the message is to be continuously transmitted and exchanged along the plurality of spare links.

### REMARKS

By this amendment, claims 1, 3-6, and 8-18 are pending, in which claims 2 and 7 are cancelled without prejudice or disclaimer, claims 11-18 are newly presented, and claims 1, 5, 6, and 8-10 are amended.

The Office Action mailed April 11, 2002 rejected claim 1 as obvious under 35 U.S.C. § 103 based on *Shah et al.* (US 5,646,936), claim 6 as obvious under 35 U.S.C. § 103 based on *Shah et al.* (US 5,646,936) in view of *Sharma et al.* (US 5,986,783), and claims 9 and 10 under 35 U.S.C. § 102 as anticipated by *Bengston et al.* (US 6,337,846). Claims 2-5, 7 and 8 were objected to as being dependent upon a rejected base claim, but otherwise indicated as being allowable if rewritten in independent form.

In the interest of expediting prosecution, Applicant has amended independent claim 1 to include allowable subject matter of objected claim 2. Additionally, independent claim 6, as amended, includes allowable subject matter of objected claim 7. As regards the § 102 rejection, independent claim 9 has been amended to depend from amended independent claim 1, thereby rendering the rejection moot. Accordingly, it is submitted that amended independent claims 1 and 6 should be allowable, and that the corresponding dependent claims 3-5, 9, 10, and 8 are also allowable.

Attention is now directed to newly added claims 11-18, which are believed to clearly distinguish over all the references of record, and are therefore also believed to be allowable. More particularly, new independent claim 11 is directed to a method for providing network restoration, and recites "generating topology information of the plurality of spare links; and

transmitting the generated topology information to an origin node.” In addition, new independent claim 15 is directed to a system for providing network restoration, in which a support system is “configured to generate topology information of the plurality of spare links and to selectively transmit the generated topology information to an origin node.” None of the references of record transmits generated topology information to an origin node. Therefore, it is believed that the cited references do not in any way disclose or obviate the method recited in independent claim 11 or the system of independent claim 15; and the corresponding dependent claims 12-14, and 16-18 are therefore also believed to be allowable over the applied references.

Therefore, the present application, as amended, overcomes the objections and rejections of record and is in condition for allowance. Favorable consideration is respectfully requested. If any unresolved issues remain, it is respectfully requested that the Examiner telephone the undersigned attorney at (703) 425-8508 so that such issues may be resolved as expeditiously as possible.

Respectfully Submitted,

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**APPENDIX**

1. (Twice Amended) A method of mapping a topology of the spare capacity of a [distributed restoration algorithm (DRA) provisioned] telecommunications network having a plurality of nodes interconnected with working and spare links, comprising the steps of:

[a)] outputting a message from each spare link of each said nodes to the adjacent node to which said each spare link is connected;

[b)] identifying the port number of said each node from where said each spare link outputs said message and the port number of the adjacent node connected to said each spare link whereat said message is received;

[c)] storing as data, in one location, the respective port numbers of all nodes that have connected thereto at least one spare link via which said message is either sent or received, the identities of said all nodes and the spare links interconnecting said all nodes; [and]

[d)] generating from said stored data the topology of all spare links interconnecting all the nodes of said network[.]; and

providing said generated topology of the spare links of said network to the origin node.

5. (Amended) The method of claim [2] 1, further comprising the steps of:

continuously updating the status of said message arriving at each spare port of the nodes of said network; and

storing said updated status in said central processing means;

wherein said central processing means is adaptable to use said updated status to provide a real time topology of the spare capacity of said network.

6. (Amended) In a distributed restoration algorithm (DRA) provisioned telecommunications network having a plurality of nodes interconnected with working and spare links, a method of continuously monitoring the available spare capacity of said network, comprising the steps of:

[a)] generating keep alive messages;

[b)] continuously exchanging said keep alive messages on the spare links of said network when a DRA event is not in progress; and

[c)] recording the various spare ports that transmitted and received said keep alive messages to determine the number of spare links available in said network[.], wherein each of said keep alive messages includes,

a first field containing the identification number of the node that sent said message,

a second field containing the identification number of the port of said node whence said message is output, and

a third field having an identifier that is set to a specific value when said node is one of the custodial nodes that bracket a failed link.

8. (Amended) The method of claim 6, [7, further comprising the step of: generating each of] wherein each of said keep alive messages [to] includes a fourth field identifying said keep alive message to be a message that is continuously transmitted and exchanged along spare links between adjacent nodes of said network while a DRA process is not in progress.

9. (Amended) The method of claim 1, wherein the message in the outputting step comprises: [In a distributed restoration algorithm (DRA) provisioned telecommunications network having a plurality of nodes interconnected with working and spare links, a message

being transmitted between adjacent nodes of said network that are connected by at least one spare link for mapping the topology of the spare capacity of said network, comprising:]

- a first field containing the identification number of the node that sent said message;
- a second field containing the identification number of the port of said node whence said message is output; and
- a third field having an identifier that is set to a specific value when said node is one of the custodial nodes that bracket a failed link;

wherein, when there is a failed link, said message is broadcast from one of the custodial nodes that bracket said failed link.

10. (Amended) The method of claim 9, wherein the [The message of claim 9, wherein said] message further comprises:

a fourth field for identifying said message to be a message that is continuously transmitted and exchanged along spare links between adjacent nodes of said network while a DRA process is not in progress.